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**MARKETING MARGINS IN PHILIPPINE FISHERIES  
INDUSTRY AND ITS IMPLICATION TO SECTORAL  
POVERTY: AN EMPIRICAL ANALYSIS ANCHORED ON  
THE MILKFISH INDUSTRY**

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## ABSTRACT

This paper is intended for policy makers and officials of government agencies specifically the Philippine Department of Agriculture, the Bureau of Fisheries and Aquatic Resources and other agencies mandated to promote the welfare of the domestic fisheries industry. Tasked to steer direction of the Philippine fisheries industry, it is primal for these policy makers to know the following current-day startling industry facts: our fishermen posted the highest level of poverty incidence among the nine basic sectors despite our vast fishery resources, the dominant role our country plays in the global fishing industry and its contribution to the local economy. Thus, the policy objective is to determine the best policy option that will improve the income of fisherfolks without putting into jeopardy food security.

To determine potential reasons for the low incomes among the fishermen, the dynamics governing the fisheries marketing system was studied using data from the BAS. It was found out that the price of fish is increasing and that; share of fishermen to prices paid for by consumers is decreasing. In addition, there is a strong evidence of market power imposed upon fish producers/fishermen by the retailers. The paper also attempted to review existing policies and legislations related to fisheries marketing and credit from the works of Hernando (2002).

Four policy alternatives were presented for consideration and these are: (1) status quo - maintaining of current conditions ; (2) government intervention in the input and output market; (3) income transfer/ area payments; and, (4) development of market institutions like establishment of commodity board tasked to rationalize industry-specific infrastructures, market information, regulation and coordination, legal mechanisms and specific market-based risk measures. Advantages and disadvantages of each policy option were presented. Using effectiveness, sustainability, efficiency, flexibility, institutional constraints and sector performance as criteria, it was found out that the best policy option to address the short term goal of addressing poverty among the fishermen without putting into jeopardy food security is government intervention in the input and output market. It was also suggested that while addressing the short-term objectives, foundations that will address the major problem of market inefficiency has to be simultaneously addressed. This includes industry rationalization through development of market institutions with private sector on the lead. In addition, market inefficiencies can be corrected so that the market power that exists can be reduced if not totally eliminated.

**Keywords:** *marketing margins, fish industry, conjecture*

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# **MARKETING MARGIN IN THE PHILIPPINE FISHERIES INDUSTRY AND ITS IMPLICATION TO SECTORAL POVERTY: AN EMPIRICAL ANALYSIS ANCHORED ON THE MILKFISH INDUSTRY**

*Reynold Tan*

## **1.0 Introduction**

### ***1.1. An Overview of the Philippine Fishery Industry***

Our country has a vast fishery endowment from its rich marine and inland fishery resources like extensive river systems, natural lakes, and fresh water swamps. The Bureau of Fisheries and Aquatic Resources (2009) estimated the marine and inland resources at 2,200,000 square kilometers. Given these resources, the Philippines ranks 10<sup>th</sup> among fish producing countries in the world in terms of fish production of 512,220 and 62,369 in 2004 and 2006, respectively.

The fisheries sector is broken down into five major subsectors. These sub-sectors under the Philippine fisheries sector are: (1) aquaculture, (2) inland municipal fisheries, (3) marine municipal fisheries, (4) municipal fisheries, (5) commercial fisheries. Of these, aquaculture is the biggest subsector in terms of volume of fishery production. Bangus is the second major aquaculture species next only to seaweed (*Kappahycus* spp. and *Eucheuma* spp.).

Cognizant of the vastness and richness of our fishery resources, it has propelled our country as one of the dominant players in the world fishery industry.

### ***1.2 Philippines in the Global Fisheries Industry***

In 2010, Philippines ranked 5th among the top fish producing countries in the world with its total production of 5.16 million metric tons of fish, crustaceans, mollusks, and aquatic plants (including seaweeds) (FAO 2011). In addition, said production constitutes 3.06% of the total world production of 168.4 million metric tons. In terms of value, the country's aquaculture production of fish, crustaceans and mollusks has amounted to over 1.56 billion dollars. Similarly, the Philippines is the world's 3rd largest producer of aquatic plants (including seaweeds) having produced a total of 1.80 million metric tons or nearly 9.48% of the total world production of 19.01 million metric tons.

### ***1.3 Contribution to national economy***

The fishing industry's contribution to the local economy is just enormous: significant share in gross domestic product, share in gross value added in agriculture, and in the jobs it brings about to Filipino populace.

Based on the accounts of the Philippine Bureau of Fisheries and Aquatic Resources (2010), fishing industry's contribution to the country's Gross Domestic Products (GDP) were 1.9 % and 2.2% at current and constant 2000 prices, respectively. This translates to some P183.1 billion for current prices and P130.77 billion for constant prices of the country's GDP of P9,735.52 billion (current prices) and P5,924.4 billion (constant prices).

The industry also accounted for 14.7% (P183.1 billion) and 19.2% (P130.77 billion) of the Gross Value Added (GVA) in Agriculture, Hunting, Forestry and Fishing Group of P1,245 billion and P680 billion at current and constant prices, respectively, the largest share next to agricultural crops.

The industry employed a total of 1,614,368 fishing operators nationwide (NSO 2002 Census for Fisheries) of which the municipal fisheries sector accounted for more than one million (1,371,676) operators while the commercial and aquaculture sectors added some 16,497 and 226,195 operators, respectively (Philippine Bureau of Fisheries and Aquatic Resources, 2010).

#### ***1.4 A Sad Reality for the Fishery Sector***

Despite of its recognition as a result of the significant role it plays in the global fish production and its contribution to the domestic economy, one sad reality besets the fishery sector--- a vast majority from the sector is poverty-stricken. The fishermen sector posted the highest poverty incidence for nine basic sectors in the Philippines at 41.4%, the same level in 2006, followed by farmers and children at poverty incidences of 36.7% from 37.2% in 2006 and 35.1% from 32.7% in 2006, respectively (NSCB, 2012). Poverty incidences for fishermen, farmers, children, self-employed and unpaid family workers are among the highest in the Philippines at 26.5% in 2009.

Poverty incidence for four basic sectors increased between 2006 and 2009: youth and migrant and formal sector workers, both with 1.0 percentage point increases, and children and individuals residing in urban areas, both with 0.3 percentage point increases. (National Statistics Coordination Board, 2012). Refer to Table 1 below for the poverty incidence among the nine basic sectors.

**Table 1 Poverty incidence among the nine basic sectors, Philippines (2009)**

Sector	2003			2006			2009			Increase/Decrease	
	Poverty Incidence	90% Confidence Interval		Poverty Incidence	90% Confidence Interval		Poverty Incidence	90% Confidence Interval		2003 - 2006	2006 - 2009
		Lower Limit	Upper Limit		Lower Limit	Upper Limit		Lower Limit	Upper Limit		
<b>Philippines<sup>5/</sup></b>	<b>24.9</b>	<b>24.1</b>	<b>25.8</b>	<b>26.4</b>	<b>25.5</b>	<b>27.3</b>	<b>26.5</b>	<b>25.6</b>	<b>27.3</b>	<b>1.5</b>	<b>0.1</b>
Fishermen	35.0	32.4	37.6	41.4	38.6	44.2	41.4	38.9	43.9	6.4	0.0
Farmers	37.0	35.5	38.4	37.2	35.7	38.7	36.7	35.4	38.1	0.2	(0.5)
Children	32.7	31.5	33.9	34.8	33.6	36	35.1	34.1	36.2	2.1	0.3
Self-employed and Unpaid Family Workers <sup>4/</sup>	28.0	26.8	29.3	29.4	28.2	30.7	29.0	27.9	30.2	1.4	(0.4)
Women	24.0	23	25	25.1	24.1	26.1	25.1	24.3	26	1.1	0.0
Youth	19.0	18.1	19.9	20.8	19.9	21.7	21.8	20.9	22.6	1.8	1.0
Migrant and Formal Sector	14.6	13.8	15.4	15.7	14.9	16.5	16.7	16	17.4	1.1	1.0
Senior Citizens	15.1	14.2	15.9	16.2	15.3	17.2	15.8	15.1	16.5	1.2	(0.5)
Individuals residing in urban areas	11.1	10.3	11.9	12.5	11.7	13.3	12.8	12.0	13.5	1.4	0.3

Source: National Statistical Coordination Board

### **1.5 Why the Inconsistencies?**

It was succinctly presented that the Philippine fisheries industry takes pride as one of the top performers in the global fishery trade arena and a significant contributor to the country's domestic product yet it is puzzling to relate it to the sorry state of the industry participants. With growing preferential attention accorded to consumption of non-meat products for health reasons and in effect translated to higher willingness-to-pay, one can only surmise why there was a reduction in farmers' share to prices paid for by consumers.

### **1.6 Objectives of the Policy Paper**

It is the objective of this policy paper to determine the policy options that will address the problem of low incomes among the fishermen without putting in jeopardy the country's food security. To answer this problem, the paper has the following specific objectives:

1. to characterize the marketing behavior of the country's key fishery commodity;
2. to identify key policies and legislations related to fisheries marketing and credit;
3. to identify alternative policy options including its advantages and disadvantages; and,
4. to propose appropriate policy recommendations.

### **1.7 Significance of the Study**

A study on the marketing margin of a key commodity is important for numerous reasons. Public policy decisions are most often influenced by behavior of marketing margins and in effect, an economic analysis of factors influencing prices without proper considerations with marketing margins will not be complete (George and King, 1971). Also, failure to understand the nature of marketing margins and its behavior in the market will put in jeopardy the understanding of commodity demand.



### **1.8 Milkfish as Proxy for the Fishery Marketing System**

*Bangus* or Milkfish is one of the major fishery commodities produced in the Philippines and is an important food fish for the country's mass domestic consumption (Bureau of Fisheries and Aquatic Resources, 2008). Over-all production in 2008 was valued at Php 30.6 million and is growing at a rate of 9.21% (Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development, 2009). The literatures are robust with bio-technical aspects of *bangus* production but studies pertaining to marketing and its implications on marketing efficiency and potential impacts to many other industry players in the context of wealth distribution are still wanting.

Given the important role played by the *bangus* industry to the national food security program as the primary source of protein and as source of livelihood to millions of farmers, it would be of interest to study the behavior of marketing margins. An analysis of marketing margin is important in shedding light whether shifts over time has brought about deterioration of or improvement to the welfare of industry participants and of the consumers. Knowledge on marketing margin is also valuable in evaluating agricultural market efficiency; its relative levels over time may give suitable indications of changing market performance (Lamm, 1976).

### **1.8 Organization of the Paper**

With Section 1 as the background, Section 2 of the paper presents the sources of data used in the analysis. Section 3 focused mainly in the characterization of marketing margins. Next, a review of current policies and legislations related to fisheries marketing and credit was presented in Section 4. It was also in Section 4 where the different policy options will be discussed together with their advantages and disadvantages. Finally, Section 5 of the paper presented the summary, conclusions and policy recommendations.

## **2.0 Data and Methods**

Quarterly time series data of nominal wholesale *bangus* prices, nominal retail prices, real wage rate, interest rate, inflation rate, retail price of substitute product (round scad), and *bangus* production from 1996 to 2012 were collected from the Philippine Bureau of Agricultural Statistics (2013) Wholesale and retail prices are posted in a monthly frequency. Stata 10.1 was used to convert it into quarterly frequency. Quarterly prices are simple averages of the monthly prices. Total number of observations covered was 68.

Data on existing policies by the Philippine government through the Bureau of Fisheries and Aquatic Resources (BFAR) were sourced from the internet and other relevant agency publications.

**Table 2. Descriptive Statistics for all Variables Used in Modeling the Marketing Margin for Bangus in the Philippines, 1996-2012.**

Variable	Obs	Mean	Std. Dev.	Min	Max
rmmrg	68	21.75709	8.52131	10.505	40.7925
rretpri	68	114.8835	47.57014	56.47233	209.1122
rretpcprod	68	99.41309	59.66533	24.35	245.57
irwge	68	.9572804	.0548745	.8674343	1.061382
iint	68	.7126391	.2177095	.4324324	1.243243
rggret	68	93.33338	61.16122	31.14613	441.7477

Source of basic data: BFAR

*rmmrg*: real marketing margin expressed in Php/kilogram. This is derived as a difference of retail price less wholesale price. This is adjusted to capture the effect of inflation with 2000 as base.

*rretpri* : real retail price expressed in Php/kilogram. This is adjusted to capture the effect of inflation with 2000 as base.

*rggret*: real retail price of round scad (galunggong) expressed in Php/kg. This is adjusted to capture the effect of inflation with 2000 as base.

*rretpcprod*: real retail price multiplied by the per capita quantity of milkfish produced per quarter; expressed as kilograms/ person

*rwarate*: real average agricultural wage rate expressed in Php/day; CPI:2000=100.

*Interest*: interest rate expressed in %

### 3.0 Characterization of Marketing Margin

#### 3.1 The Retail Price Trend

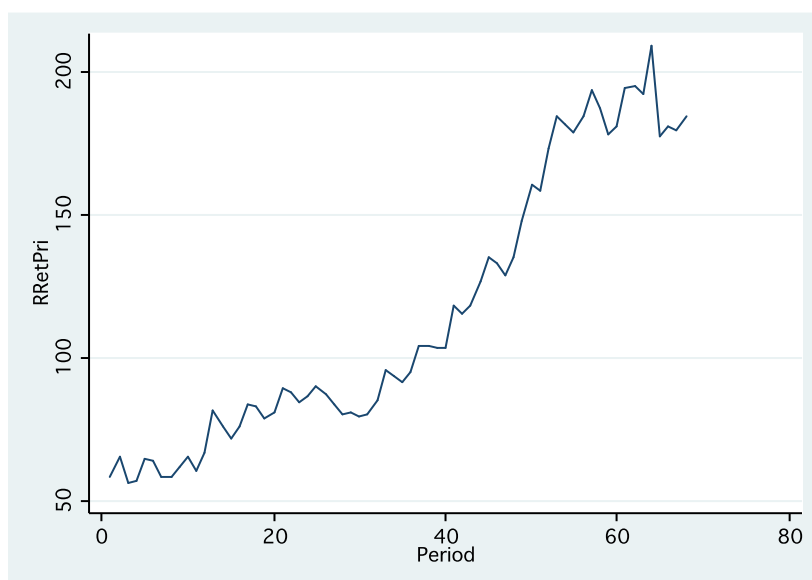
To determine future trend, real marketing margin (Php/kilogram of fresh milkfish) was postulated as a linear function of time. Autocorrelation problem was detected using the Durbin-Watson Test. Presence of serial autocorrelation was remedied using the Cochrane-Orcutt procedure. Stata 10.1, an econometric software was used to obtain the result for this specific objective. Result is shown as Table 3 below.

It can be deduced that for every unit change in time measured in quarter of a year, marketing margin increases on the average by Php 0.40/kilo and is highly significant at alpha=0.001.

**Table 3. Estimation Results for the Real Marketing Margin Regression Equation**

Source	SS	df	MS			
Model	4139.12807	1	4139.12807	Number of obs =	68	
Residual	725.924123	66	10.9988503	F( 1, 66) =	376.32	
				Prob > F =	0.0000	
				R-squared =	0.8508	
				Adj R-squared =	0.8485	
				Root MSE =	3.3165	
rmmrg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
period	.3974922	.0204903	19.40	0.000	.3565821	.4384024
_cons	8.043612	.8133118	9.89	0.000	6.419782	9.667441

Source of basic data: BFAR



Source of basic data: BFAR

**Figure 1. Real Marketing Margin for Milkfish in the Philippines, 1996-2012.**

### 3.2 *Characterization of the farm-retail price spread or the marketing margin*

Marketing margin is the difference between the retail price of a product and its farm value—the payment to farmers for an equivalent quantity of farm products. It includes the cost incurred and the profits enjoyed by all players involved in the transfer of products from farmers to consumers ( King, 1971)

Table 4 below shows the univariate descriptive statistics for real marketing margin for fresh milkfish in the Philippines from 1996-2012. Average marketing margin was Php 21.76 with a standard deviation of 8.52.

**Table 4. Univariate descriptive statistic for real marketing margin for fresh milkfish in Philippines, 1996-2012.**

Variable	Obs	Mean	Std. Dev.	Min	Max
Real Marketing Margin	68	21.75709	8.52131	10.505	40.7925

Two potential explanations for the continuing increase in marketing margin can be deduced: (1) cost incurred in the transfer of fishery products from the farm to the market has increased; and that, (2) markets may not function perfectly. Cost to transfer products from the farm to the consumers includes payments to services from the farm, processing, storage, transportation, and retailing. Drivers to the increasing cost are: (1) growing clamor for safety and quality of agricultural products; (2) adherence to philosophy of customer-oriented marketing; (3) effective and efficient response to exchange of goods and services; and; (4) mounting pressure to adhere to sound environmental practices and risks at each value-adding activity of the supply chain (High Beam Business).

Another reason for extraordinarily high marketing margins is market imperfection. It may come as a result of imperfect or asymmetric information and adjustment cost.

### 3.3 Elasticity of price transmission

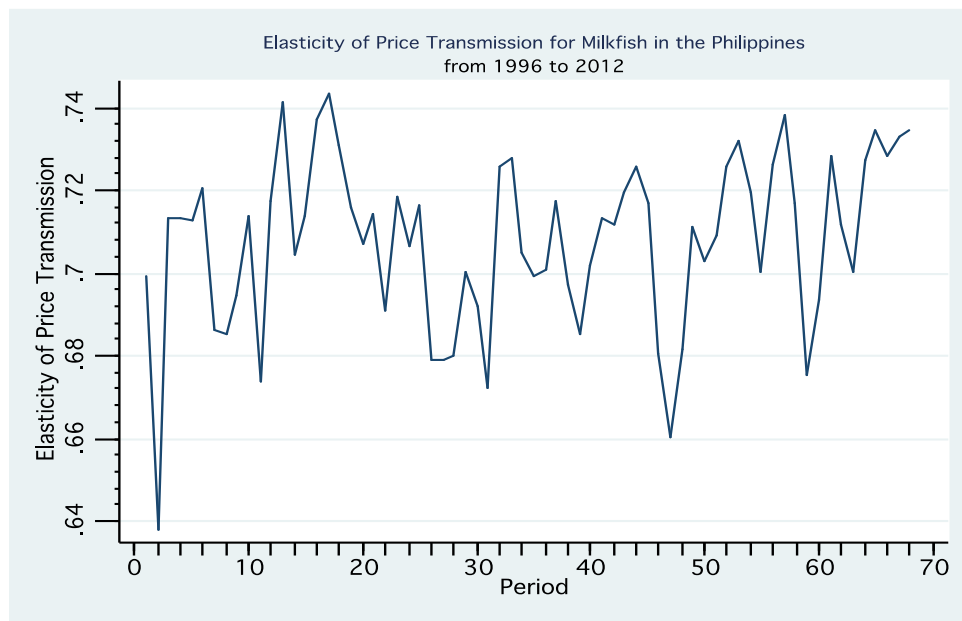
The elasticity of price transmission (EPT) is defined as a percentage change to retail price for a 1% change in farm gate price. EPT for milkfish from farmers to retailers is calculated based on empirical results of the relative price spread model as (Dickerson, 2003):

$$EPT_t = \frac{1}{1-CRP} * \frac{FP_t}{RP_t}$$

- where:
- EPT<sub>t</sub> = Elasticity of price transmission in time period t
  - CRP = Coefficient Associated with Retail Price in the Relative Price Model
  - FP<sub>t</sub> = Farmgate Price in time period t
  - RP<sub>t</sub> = Retail Price in time period t

Figure 2 plots the elasticity of price transmission for milkfish in the Philippines from 1996-2012. Average quarterly EPT over a 16-year period is 0.707 with n=68 and sd=0.201. Maximum EPT observed was 0.743 whereas minimum observation was at EPT=

0.638. This implies that on the average, a 1% change in wholesale price is likely to result to a 0.707% increase in retail price of milkfish. Similar to the work of Arman (2007) having obtained an  $EPT = 0.7$  in his work on US beef marketing margins, a value of 0.7 translates into an exercise of retail market power. In the absence of market power, elasticity of price transmission is close to 1.0 (Arman, 2007). An important implication of this specification is that, so long as retail price is larger than the price paid to farmers, demand at the farm level will be less elastic than demand at the retail level (Wholgenant, 2001).



Source of basic data: BFAR

**Figure 2. Elasticity of Price Transmission for Milkfish in the Philippines, 1996-2012**

The use of the computed EPT to guide policy decisions should be exercised with caution despite evidences of the exercise of market power because some determinants of marketing margin may have not been included in the research (Arman,2007).

The following are the key generalizations we can derive from Sections 3.1 and 3.2: retail prices of bangus are increasing over time, share of farmers to prices paid for by consumers are decreasing and that, there is an evidence of exercise of retail market power.

#### **4.0 Policies and Legislations Related to Fisheries Marketing and Credit**

This section will present a review of existing policies and programs aimed at improving the marketing system of Philippine fisheries industry. In addition, it is also in this section where the different strategic policy options together with their advantages and disadvantages will be discussed. Finally, discussion on the necessity for change in existing policies that will warrant improvement in the plight of the Philippine fishery sector will be presented .

#### **4.1 A Review of Existing Policies and Programs on Marketing of Fishery Products**

In order to understand fully well the existing fishery industry scenario, there is a need to review existing government policies which may have had influenced current industry status. Hernando (2002) reviewed the policies related to credit and marketing in the Philippine fisheries industry. The policies mentioned in this section were derived from her works.

The policies and enabling legislation that are embodied in the Local Government Code of 1991 (LGC, RA 7160), the Philippine Fisheries Code of 1998 (RA 8550), the Agriculture and Fisheries Modernization Act of 1997 (AFMA, RA 8435), and some relevant provisions of the Cooperative Code of the Philippine (RA 6938) make up the national legal and policy framework for fisheries marketing and credit granting. The Philippine Constitution of 1987 as the highest law of the land sets the tone for the promotion and development of the fisheries and coastal resource management system in the country, and lays the foundation for all fishery laws including local ordinances.

##### **4.1.1 The Philippine Constitution of 1987**

Policy guidelines for the proper management and utilization of all of the country's natural resources including entrepreneurial endeavors in fisheries are embodied in the following constitutional provisions:

The State shall protect and promote the right to health of the people; the State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature (Article II, Sections 15 and 16).

The exploration, development, and utilization of natural resources shall be under the full control and supervision of the State. The State shall protect the nation's marine wealth...and exclusive economic zone, and reserve its use and enjoyment exclusively to Filipino citizens (Article XII, Section 2).

The State shall protect the rights of subsistence fishers, especially of local communities, to the preferential use of the communal marine and fishing resources, both inland and offshore. It shall provide support to such fishers through appropriate technology and research and other services (Article XIII, Section 7).

The State shall encourage non-governmental, community-based, or sectoral organizations that promote the welfare of the nation (Article II, Section 23).

The State shall respect the role of independent people's organizations to enable the people to pursue and protect within the democratic framework, their legitimate and collective interests and aspirations through peaceful and lawful means (Article XIII, Section 15).

The right of the people and their organizations to effective and reasonable participation at all levels of social, political, and economic decision-making shall not be abridged (Article XIII, Section 16).

#### **4.1.2 The Local Government Code of 1991 (RA 7160)**

A landmark legislation in Philippine local governance, the Local Government Code concretizes the constitutional provision for a more accountable and responsive local government structure initiated through a system of decentralization. It calls for more democratic local governance that is responsive to the demands of sustainable development. Policy pronouncements embodied in the Code include the promotion of local autonomy as a means toward development; ensuring accountability of local governments through the mechanisms of recall, initiative and referendum; and, consultations with non-government organizations (NGOs) and people's organizations (POs), and other concerned sectors before implementation of community programs or projects (Section 2, LGC).

In line with such policies, the Code requires observance of the following measures on fisheries resource management:

- Local governments shall share with the national government the responsibility in the management and maintenance of ecological balance within their territorial jurisdiction, subject to the provisions of the Code and national policies (Section 3);
- Extension and on-site research services and facilities related to agriculture and fishery activities...water and soil resources utilization and conservation projects; and enforcement of fishery laws in municipal waters including the conservation of mangroves (Section 17 b);
- Assistance in the organization of farmers' and fishermen's cooperatives and other collective organizations (Section 17 b);
- LGUs may, through appropriate ordinances, group themselves, consolidate, coordinate their efforts, services, and resources for purposes commonly beneficial to them (Section 33);
- Local government units may enter into joint ventures and such other cooperative arrangements with people's and non-governmental organizations to engage in the delivery of basic services, capability building and livelihood projects, and to develop local enterprises designed to improve productivity and income, diversify agriculture, spur rural industrialization, promote ecological balance, and enhance the economic and social well-being of the people (Section 35).
- Protect the environment and impose appropriate penalties for acts which endanger the environment, such as dynamite fishing and other forms of destructive fishing (Sections 447, 458, 468).
- Provide for an efficient and effective solid waste management and garbage collection and disposal and prohibit littering and the placing or throwing of garbage, refuse and other filth and wastes (Section 447).
- Extension of municipal waters up to 15km from the shoreline (Section 131 r).
- Exclusive authority to municipal governments in granting fishery privileges in the municipal waters and impose rentals, fees or charges (Section 149).

#### **4.1.3 The Philippine Fisheries Code of 1998 (RA 8550)**

The Fisheries Code provides for the development, management and conservation of fisheries and aquatic resources. It improves on all prior laws and regulations pertaining to

fisheries management. National fishery policies embodied in Section 2 of the Code include the following:

- Achievement of food security as the overriding consideration in the utilization, management, development, and conservation and protection of fishery resources in order to provide the food needs of the population. A flexible policy towards the attainment of food security shall be adopted in response to changes in demographic trends for fish, emerging trends in the trade of fish and other aquatic products in domestic and international markets, and the law of supply and demand.
- Limitation of access to the fishery and aquatic resources of the Philippines for the exclusive use and enjoyment of Filipino citizens.
- Rational and sustainable development, management and conservation of fishery and aquatic resources in Philippine waters including the Exclusive Economic Zone (EEZ) and in the adjacent high seas, consistent with the primordial objective of maintaining a sound ecological balance and protecting and enhancing the quality of the environment.
- Protection of rights of fisherfolk especially of the local communities and giving priority to municipal fisherfolk in the preferential use of municipal waters. Such preferential use shall be based on but not limited to, Maximum Sustainable Yield (MSY) or Total Allowable Catch (TAC) on the basis of resource and ecological conditions, and shall be consistent with the Philippines' commitments under international treaties and agreements.
- Provision of support to fishery sector, primarily to municipal fisherfolk, including the women and youth sectors through appropriate technology and research, adequate finance, production assistance, construction of post harvest facilities, marketing assistance, and other services. The protection of municipal fisherfolk against foreign intrusion shall extend to offshore fishing grounds. Fish workers shall receive a just share for their labor in the utilization of marine and fishery resources.
- Management of fishery and aquatic resources in a manner consistent with the concept of integrated coastal area management in specific natural fishery management areas, appropriately supported by research, technical services and guidance provided by the State.
- Grant to private sector the privilege to utilize fishery resources under the basic concept that the grantee, licensee or permittee thereof shall not only be a privileged beneficiary of the State but also an active participant and partner of Government in the sustainable development, management, conservation and protection of fishery and aquatic resources of the country (RA 8550).
- Providing substance to such policy declarations are the following provisions of the Fisheries Code:
  1. Enactment of appropriate fishery ordinances in accordance with national fisheries policy and enforcement of all fishery laws, rules and regulation, as well as valid fishery ordinances enacted by the municipal council (Section 16, Article I).
  2. Integration of the management of contiguous fishery resources/areas, which must be treated as a single resource system (Section 16, Article I).
  3. Granting of fishing privileges to duly registered fisherfolk organizations/cooperatives (Section 17, Article I).



4. Ensuring that municipal waters are utilized by municipal fisherfolk organizations/cooperatives, except when appropriate ordinance is enacted to allow commercial fishing within the municipal waters (Section 18, Article I).
  5. Maintenance of a registry of municipal fisherfolk for monitoring fishing activities and for other related purposes (Section 19, Article I).
  6. Granting of demarcated fishery rights to fishery organizations/cooperatives for mariculture operation (Section 22, Article I).
  7. Organization and development of Fisheries and Aquatic Resource Management Councils (FARMCs) at the national, regional and local levels (Section 69, Article II).
- The other sections of the Code that relate directly to fisheries marketing and credit especially for capture fisheries are as follows:
    1. Provision of support to municipal fisherfolks through appropriate technology research, credit, production and marketing assistance and other services (Section 24, Article I).
    2. Comprehensive Postharvest and Ancillary Industries Plan that includes, among others, guidelines on the distribution, construction, maintenance and use of postharvest infrastructure facilities; extension of credit and incentives for postharvest operations; promotion of semi-processing, processing, and handling; development of fisheries ship building and repair; marketing facilities and activities including the pricing system, with emphasis on collective marketing and elimination of middlemen; increased participation of NGOs in postharvest operations; and, integration of postharvest operations into the national fisheries plan (Section 58).
    3. Establishment of postharvest facilities, i.e., fish ports, ice plants and cold storage, and other fish processing establishments to serve primarily the needs of municipal fisherfolk (Section 59).
    4. Standards for weights and measures, and quality grades/standards for all transactions shall be set by the Department of Agriculture (Section 62).
    5. Municipal Fisheries Grant Fund for fishery projects of the LGU to be funded from the allocation of the Department of Agriculture (DA) in the General Appropriations Act (GAA) (Section 109).
    6. Fishery Loan and Guarantee Fund to be administered by the Land Bank of the Philippines for development of the fishery industry under a program prescribed by the DA (Section 110).
    7. Fishing Vessels Development Fund for the building and/or acquisition of fishing vessels to be administered by the Development Bank of the Philippines, appropriated out of DA's GAA (Section 111).
    8. Other fisheries financing facilities for Filipino fisherfolk and fisheries enterprises granted under existing and/or new laws, especially as to rural credit, with preference being given to fisheries cooperatives (Section 114).
    9. Infrastructure Support through the DA in cooperation with concerned agencies which includes, among others, a nationwide plan for the

development of municipal fishing ports and markets; construction of farm-to-market roads linking the fisheries production sites, coastal landing points and other post-harvest facilities to major market and arterial road/highways; community infrastructure facilities such as fish landing ports, ice plant, and cold storage facilities in consultation with fishery cooperatives/associations; quality laboratories in major fish ports; marketing facilities and promotion of cooperative marketing systems; and, promoting and strengthening local fisheries ship-building and repair industry (Section 119).

#### **4.1.4 The Agriculture and Fishery Modernization Act of 1997 (AFMA, RA 8435)**

The AFMA adheres to the following principles: 1) poverty alleviation and social equity; 2) food security; 3) rational use of resources; 4) global competitiveness; 5) sustainable development; 6) people empowerment; and, 7) protection from unfair competition (Section 2, AFMA).

The equitable distribution of opportunities, income and wealth in the national economy; a sustained increase in the amount of goods and services produced by the nation for the benefit of the people; and expanding productivity as the key to raising the quality of life for all, especially the underprivileged are the major goals of the AFMA.

Specifically, the AFMA intends to:

- modernize the agriculture and fisheries sectors by transforming these sectors from a resource – based to a technology – based industry;
- enhance profits and incomes in the agriculture and fisheries sectors, particularly among small farmers and fisherfolk, by ensuring equitable access to assets, resources and services and promoting higher value crops, value-added processing, agribusiness activities and agro-industrialization;
- ensure the accessibility, availability and stable supply of food to all at all times;
- encourage horizontal and vertical integration, consolidation and expansion of agriculture and fisheries activities, groups, functions and other services through the organization of cooperatives, farmers’ and fisherfolk’s associations, corporations, nucleus estates, and consolidated farms and to enable these entities to benefit from economies of scale, afford stronger negotiating position, pursue more focused, efficient and appropriate research and development efforts, and hire professional managers;
- promote people’s empowerment by strengthening people’s organizations, cooperatives and NGOs and by establishing and improving mechanisms and processes for their participation in government decision-making and implementation;
- pursue a market-driven approach to enhance the comparative advantage of agriculture and fisheries sectors in the world market;
- induce the agriculture and fisheries sectors to ascend the value-added ladder continuously by subjecting their traditional or new products to further processing in order to minimize the marketing of raw, unfinished or unprocessed products;
- adopt policies that will promote industry dispersal and rural industrialization by providing incentives to local and foreign investors to establish industries that have linkages to the country’s agriculture and fisheries resource base;

- provide social and economic adjustment measures that increase productivity and improve market efficiency while ensuring the protection and preservation of the environment and equity for small farmers and fisherfolk; and,
- improve the quality of life of all sectors (Section 3, AFMA).
- The provisions of the AFMA that give special focus to marketing and credit are as follows:
- Phase-out of the Directed Credit Programs (DCPs) and the provision for the Agro-Industry Modernization Credit and Financing Program (AMCFP) (Section 21).
- Rationalization of credit guarantee schemes and funds (Section 25). Establishment of a National Marketing Assistance Program (Section 40).
- Provision of information and marketing services related to agriculture and fisheries (Section 42).
- Provision of Agriculture and Fisheries Infrastructure Support Services (Section 46).
- Establishment of fish ports, seaports and airports (Section 51). Construction of farm-to-market roads (Section 52).

#### **4.1.5 The Cooperative Code of the Philippines (RA 6938)**

RA 6938 states that it is the declared policy of the state to foster the creation and growth of cooperatives as a practical vehicle for promoting self-reliance and harnessing people power towards the attainment of economic development and social justice; the state shall encourage the private sector to undertake the actual formation and organization of cooperatives and shall create an atmosphere conducive to the growth and development of cooperatives; and the Government and all its branches, subdivisions, instrumentalities, and agencies shall provide technical guidance, financial assistance and other services to enable cooperatives to develop into viable and responsive enterprises and bring about a strong cooperative movement (Article 2, RA 6938).

Fishermen either commercial or small-scale once organized into fishery cooperatives with marketing and/or credit granting services can avail of the following privileges:

- Cooperatives rendering special types of services and facilities such as cold storage, ice plant, electricity, transportation, and similar services and facilities shall secure a franchise therefore, and such cooperatives shall open their membership to all persons qualified in their areas of operation (Article 63 [3] ).
- In areas where appropriate cooperatives exist, the preferential right to supply government institutions and agencies, corn and other grains, fish and other marine products, meat, eggs, milk, vegetables and tobacco and other agricultural commodities produced by their members (Article 63 [4] ).
- Preferential and equitable treatment in the allocation and control of bottomries of commercial shipping vessels in connection with the shipment of goods and products of cooperatives (Article 63 [6] ).
- Cooperatives and/or their federations, such as market vendor cooperatives shall have preferential rights in management of public markets and/or lease of public facilities, stall or spaces (Article 63 [7] ).
- Credit cooperatives and/or federations shall be entitled to loans, credit lines, rediscounting of their loans, and other eligible papers with the development bank of

the Philippines, the Philippine National Bank, the Land Bank of the Philippines, and other financial institutions except the Central bank of the Philippines (Article 63 [8]).

- Cooperatives transacting business with the Philippine government or any of its political subdivisions or any of its agencies or instrumentalities, including government-owned and controlled corporations shall be exempt from prequalification bidding requirements (Article 63 [9] ).

#### **4.1.6 Other Policies and Legislation Related to Fisheries Marketing and Credit**

If organized, fisherfolk and commercial fishermen can avail of the benefits of the Magna Carta for Small-Scale Industries (RA 6977), which spell out the government's policy in promoting growth and development of small enterprises through the establishment of the Small and Medium Business Advisory Council (SMBAC). The SMBAC extends necessary technical assistance for small and medium business requirements. Also for organized fishery entrepreneurs, Executive Order No. 38 provides credit facilities for small and medium enterprises.

#### **4.2 *Review the Current Policy and Statement of Necessity for Change***

From the review of the current policies concerning the Philippine fisheries industry, it is apparent that it is tailored fit to address production and sustainability of the fishery resource. This is typical of the government programs in the 90's that were designed to address the problem of food security. The general focus of the policies were skewed towards food sufficiency, export competitiveness and environmental quality. For example, Table 5 below presents the components of the agricultural and fisheries modernization program of the Department of Agriculture from 2001 to 2005 and it can be deduced that prime focus is on increasing production. Minimal provision is allocated for marketing and marketing support mechanisms.

**Table 5. Components of the Agriculture and Fisheries Modernization Program of the Department of Agriculture, 2001-2005 (% Share)**

Expenditure item	2001	2002	2003	2004	2005
Irrigation services	44.3	53.4	43.9	41.2	40.4
Postharvest facilities	5.9	3.0	1.1	5.7	10.6
Other infrastructure	7.3	2.4	2.2	—	—
Agro-industry modernization credit and financing program	1.3	0.0	0.6	1.4	0.9
Farmer-fisherman marketing assistance	1.1	0.5	0.6	0.6	0.5
Research and development	8.3	5.0	4.2	5.5	5.2
Capability building of farmer and fisherman organizations and LGUs	7.9	6.6	4.6	4.5	11.4
Salary supplement for extension workers under LGUs	3.0	3.8	5.3	4.6	—
National information network	0.5	0.4	0.6	0.5	1.1
Regulatory services	2.0	10.3	6.2	5.7	3.3
Production support	10.5	9.6	27.3	26.6	21.7
Policy and planning	0.3	0.4	1.2	2.3	—
Human resources development	0.0	0.1	—	—	—
Program management	7.5	4.4	2.2	1.2	4.9
Total	100.0	100.0	100.0	100.0	100.0

Source: Department of Agriculture.

Note: LGUs—local government units.

Having said so, the fundamental question is how to improve incomes of the fisherfolks, and address food security in the face of declining fishermen's income to prices paid for by consumers and strong evidence of market power.

### 4.3 *The Viable Policy Options*

#### 4.3.1 **Status quo**

This policy option refers to the industry's existing state of affair. As such, this implies doing nothing or plainly maintaining or continuing the current policy. Based on the review of the Philippine policy environment on fisheries and fishery industry development, policies that will favor industry promotion is in place. It is however the same policy environment that may have had contributed to the poverty among the fisherfolk community especially the fish farmers. Moreover, this policy environment is known to have had resulted to continuous increase in retail prices of fish, declining share of fishermen's income to prices paid for by fish consumers and that, this also the subjected fisherfolks under the influence of market power.

##### a.1 Advantages

1. Uncertainty of results from alternative policies. May even result to a scenario far worse than the existing. (Less is better than unknown mentality).
2. Maintaining things under status quo will not entail transaction cost or create any form of temporary inconvenience (e.g. economically, politically) to existing industry structures.

##### a.2 Disadvantages

1. The policy environment that is attributed to the existing policy concern marked by increasing poverty among the fishery sector.
2. Forecast of the future based on conditions of status quo seems bleak:

trend in poverty if left alone is increasing, retail prices are increasing, share of fisherfolks to prices paid for by consumers is decreasing and that there is a strong evidence of market power.

#### **4.3.2 Interventions in the markets for outputs and inputs**

This alternative entails either a subsidy or a price control with the intension of keeping the market price of fish higher than competitive equilibrium level. The subsidy is implemented by means of a coupon system, which could be redeemed by the recipients for production inputs at prices less than the normal cash price. In the case of price control, the support is the minimum legal price a seller may charge and is typically above the market equilibrium. It can also be in a form of an agreement set by the government, where the government agrees to purchase the surplus of a produce at a minimum price.

##### **a.1 The Advantages**

1. Does not appear as dole-out as in any other forms of assistance because intervention is based on production and effort;
2. Implementation does not require a data base of farmers and farmer's profile needed in the setting of criteria for beneficiary selection.
3. Straightforward to implement

##### **a.2 Its Disadvantages**

1. Leaks to unintended recipients like providers of purchased inputs or non-farming landlords or incurred as deadweight efficiency losses;
2. Typically results to perverse distributional effects with big farmers/ fisherfolks benefitting more than their smaller fisherfolk counterpart;
3. Difficult to implement administratively and politically. For example, it is problematic to restrict price guarantees to smaller farmers without using a deficiency payment system (in which case other forms of social payment must surely be feasible), or to limit fertilizer subsidies to those who would not otherwise purchase fertilizer.
4. Careful program design is needed to precisely target needy farmers, guard against "leakage" (in which wealthier farmers take advantage of the subsidy program) and maintain a degree of exclusivity. Wealthier farmers may be in a better position to take advantage of the subsidies, thereby thwarting the original aim of the program.
5. Additionally, the budget allotments for subsidies may also incur opportunity costs by diverting public resources away from agricultural extension services, infrastructure building, or research and development.

#### **4.3.3 Income Transfers/ Area Payments**

Income or cash transfer programs (Food and Agriculture Organization, 2011) are regular and predictable transfers of money designed to reach the targeted sector.

### a.1 Advantages

1. Does not distort the production and consumption decisions and leads to the kind of efficiency losses associated with market interventions;
2. Found to be an effective way of rationing and targeting subsidy access to maximize production and economic social gains according to the Overseas Development Institute ( (OECD, 2010)).
3. This is acceptable in the “Blue box” category of subsidies in the WTO Agreement on Agriculture negotiated at the Uruguay Round in line with international agreements to reduce market distorting subsidies and price controls.
4. Popular and found to be effective in developing countries.
5. Cash transfers often represent a dominant share of household income and can be expected to help target households in overcoming their access to credit or cash. This will lead to increase in productive and other income-generating investments, influence beneficiaries’ role in social networks, increase access to markets and inject resources into local economies (Food and Agriculture Organization, 2011).
6. Transfers between beneficiary and ineligible households, relieving pressures on existing social networks.

### a.2 Disadvantages

1. Seems very welfare-oriented;
2. From the experience of countries that have implemented sector-specific conditional cash transfer support, practical and political challenges remain in the program design and implementation to increase efficiency, control costs, and limit patronage and fraud.
3. In low income countries, where family and social networks are the main form of social protection, there is some wariness about potentially weakening that aspect of the social fabric.
4. Institutions and infrastructure do not exist (e.g. data on directory of fisherfolks, area farmed, volume of catch, etc.).
5. Susceptible to corruption
6. Questionable over-all efficacy and impact with concerns in particular over program sustainability and recipient dependency.
7. Palliative in the presence of market failures.

#### **4.3.4 Develop Market Institutions like Establishment of Commodity Board tasked to rationalize industry-specific infrastructures, market information, regulation and coordination, legal mechanisms and specific market-based risk measures**

A commodity board is a form of a regulatory industrial organization by the account of their special public-law functions. It represents business involved in the same commodity and represent the entire production chain from raw materials to finished products, including producers, industry, and wholesale and retail trade (It has the authority to impose levies and to introduce regulations that are binding to the sector (Social and Economic Council of Netherlands, 2004).

a.1 The Advantages

1. Creating of a commodity board does not distort the current marketing systems by intervening with the price dynamics occurring at the input and output levels;
2. Decision-making on matters pertaining to how the industry will be run is transferred from the government to industry participants.
3. Efficiency in management of the affairs of the sector is expected to improve as a result of the passing on of the self-regulating function to the hands of the industry players;
4. Adoption of this alternative will not warrant key changes in the current institutional mechanism of service delivery;
5. Institutional mandates of the commodity board are mentioned as key industry policy agenda but implemented as design due to certain bureaucratic and political limitations.

a.2 The disadvantages

1. Decision over vital an issue as food availability is passed on the private sector which may put into jeopardy the nation’s food security;
2. Implementation uncertainty because venturing into private-led marketing institutions is seminal for the fisheries industry. Lessons though can be learned from the more established domestic sugar industry.

4.4 Predictions

Table 7 below presents the projected output of the different policy alternatives. Depending upon the criteria and weight attached to each output parameter, the choice as to the most appropriate strategic option may vary. Based on the objective earlier presented, the most preferred option is for the government to intervene in the input and output prices through support and subsidies.

**Table 6. Projected Output of the Policy Options Considered**

Particular(s)	OPTION			
	Status Quo	Inventions in Input and Output Market Support	Income Transfers	Market Institutions Development
Likely Situation for Each Policy Option	Continuing increase in poverty incidence among fisherfolks; continuous increase in price of fish, declining share of fisherfolks to prices paid for by consumers; display of market power by retailers over fisherfolks	Increase in income among fisherfolk beneficiaries from subsidies; income commensurate to magnitude of input use and level of production; effect on price of fish is ambiguous; income share is indirectly increased by subsidy; market power still exists	Increase in income to target sector but not linked in any way to production; production may reduce thus resulting to further increase in rich prices; income share indirectly increased by cash transfer; market power still exists.	Immediate effect on poverty incidence is ambiguous in the short run but expected to be most effective addressing sectoral poverty in the long run; may result to rationalized fishery industry resulting to increase in productivity; equitable sharing of profits; market power may be reduced if eliminated in the long run;



## **5.0 Summary, Conclusion and Policy Recommendations**

Given the result of the study to determine the best policy alternative to address to growing poverty among the fisherfolk communities without putting into jeopardy the country's food security, the best policy option is for the government to intervene in the workings of the market especially in the input and output prices. Mechanisms of interventions may be in the form of but not limited to subsidies, price control or direct government participation in the trade.

An analysis of the merits and demerits of the policy options would also indicate that the different policy alternatives did not exhibit a wide range of variability when evaluated using the criteria other than effectiveness. Effectiveness implies the degree to which targeted problems are solved. Income transfers and development of market institutions, though may increase income of fish farmers in the short run, may restrict production.

Among the range of alternatives, intervening in the input and output market is the least preferred alternative in a situation where there exist market power exerted by retailers over fish producers. Choice is however justified by the more urgent issue of ensuring income. Among potential solutions which may redound to better income among industry participants, the option to intervene in input and output prices puts the least strain to pressures that will guarantee food availability/ security.

In the process of implementing the temporary solution to poverty among the fishermen, long term solutions can be already be rolled out. Industry has to be rationalized with the development of market institutions with private sector on the lead. In addition, market inefficiencies can be corrected so that the market power that exists can be reduced if not totally eliminated.

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## 7.0 Appendices

Appendix 1. Breakdown of Philippine Fishery Resources as of 2009.

<b>RESOURCE</b>		<b>Area</b>	<b>Unit</b>
A. Marine Resources			
<b>1</b>	<b>Total Territorial Water Area including EEZ</b>	2,200,000	<i>sq. km.</i>
	<i>a. Coastal</i>	266,00	<i>sq. km.</i>
	<i>b. Oceanic</i>	1,934,000	<i>sq. km.</i>
<b>2</b>	<b>Shelf Area (Depth 200 m)</b>	184,600	<i>sq. km.</i>
<b>3</b>	<b>Coral Reef Area</b>	27,000	<i>sq. km.*</i>
<b>4</b>	<b>Coastline (length)</b>	36,289	<i>km</i>
B. Inland Resources			
<b>1</b>	<b>Swamplands</b>	246,063	<i>hectares</i>
	<i>a. Freshwater</i>	106,328	<i>hectares</i>
	<i>b. Brackishwater 1/</i>	139,735	<i>hectares</i>
<b>2</b>	<b>Existing Fishpond</b>	253,854	<i>hectares</i>
	<i>b. Brackishwater 2/</i>	239,323	<i>hectares</i>
<b>3</b>	<b>Other Inland Resources</b>	250,000	<i>hectares</i>
	<i>a. Lakes</i>	200,000	<i>hectares</i>
	<i>b. Rivers</i>	31,000	<i>hectares</i>
	<i>c. Reservoirs</i>	19,000	<i>hectares</i>

Source: BFAR, 2011

## Appendix B. World's Top Ten Fish Producers

Top ten producers in terms of quantity, 2006				Top ten producers in terms of growth, 2004–2006				
Country	2004	2006	Average annual growth rate (%)	Rank	Country	2004	2006	Average annual growth rate (%)
	(Tonnes)					(Tonnes)	(Tonnes)	
China	30 614 968	34 429 122	6.05%	1	Uganda	5 539	32 392	141.83%
India	2 794 636	3 123 135	5.71%	2	Guatemala	4 908	16 293	82.20%
Viet Nam	1 198 617	1 657 727	17.60%	3	Mozambique	446	1 174	62.24%
Thailand	1 259 983	1 385 801	4.87%	4	Malawi	733	1 500	43.05%
Indonesia	1 045 051	1 292 899	11.23%	5	Togo	1 525	3 020	40.72%
Bangladesh	914 752	892 049	-1.25%	6	Nigeria	43 950	84 578	38.72%
Chile	665 421	802 410	9.81%	7	Cambodia	20 675	34 200	28.61%
Japan	776 421	733 891	-2.78%	8	Pakistan	76 653	121 825	26.07%
Norway	636 802	708 780	5.50%	9	Singapore	5 406	8 573	25.93%
<b>Philippines</b>	<b>512 220</b>	<b>623 369</b>	<b>10.32%</b>	10	Mexico	104 354	158 642	23.00%

: GreenFacts (2011)